

STUDIES IN NEOTROPICAL *NEOMIDA*:
A SYNOPSIS OF THE GENUS *NEOMIDA* (COLEOPTERA: TENEBRIONIDAE:
DIAPERINI) FROM AMERICA NORTH OF COLOMBIA WITH NOTES ON
OTHER WESTERN HEMISPHERE SPECIES

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Abstract.—The 27 species of the genus *Neomida* occurring in America north of Colombia are characterized, including synonymy, diagnosis, and distribution. A key to species and illustrations of each are presented. *Neomida telecera*, *n. sp.*, from Costa Rica is described and notes on the remaining Neotropical species of the genus are discussed. All unrecognized names are listed and possible placements suggested. Four **new synonymies** are recognized: *Hoplocephala testaceipes* Pic is a synonym of *N. picea* (Laporte and Brullé), *Neomida myllocnema* Triplehorn is a synonym of *N. occidentalis* (Champion), *Hoplocephala oblonga* Chevrolat is a synonym of *N. castanea* (Bates), and *Hoplocephala dytiscoides* Chevrolat is a synonym of *N. lateralis* (Bates). **New combinations** recognized are: *N. occidentalis* (Champion), *N. obsoleta* (Champion), *N. lateralis* (Bates), *N. hoffmanseggi* (Laporte and Brullé), *N. clavicornis* (Champion), *N. nigricornis* (Champion), *N. distans* (Champion), and *N. vitula* (Chevrolat)

Key Words: Tenebrionidae, Diaperini, *Neomida*, darkling beetles, Neotropical

Neomida Latrielle has been a frustrating genus to study. Fortunately, few of them have been described from females only, but most of us working on the group ignored or were unaware of the tremendous intra-specific variation in cephalic armature in the males. This phenomenon is encountered in most “horned beetles,” so it should come as no surprise to discover it in *Neomida*.

In major males of most species of *Neomida*, the cephalic horns are rather spectacular structures but, in instances in which large series are available, the horns of some may be reduced to mere tubercles, and it is sometimes difficult to distinguish the sexes. The genitalia have proved to be diagnostic and in some minor males, examination of genitalia is the best means of determining the species.

The females usually lack cephalic horns and often clypeal tubercles, but most of them have at least a trace of blunt tubercles at the inner margins of the eyes where the horns of the males are located. Selecting allotypes is risky since several species may inhabit the same fungus and the females may be very similar and difficult to associate with the males.

The discovery of *N. acera* (Triplehorn 1994), was particularly disturbing since both males and females totally lack both cephalic horns and clypeal tubercles. External sexual dimorphism is likewise very subtle in *N. paurocera* (Triplehorn 1994), and *N. obsoleta* (Champion 1886).

Many of the 42 species of New World *Neomida* described between 1776 (Fabricius) and 1965 (Triplehorn) were described

from unique specimens or very small series. A certain amount of synonymy was inevitable and my procrastination on this project has at least prevented me from creating more synonyms as I did with *N. occidentalis* (Champion) (see below).

Finally, the inaccessibility of many of the types contributed to my uncertainty and reluctance to attempt a more extensive revision at this time. I feel reasonably certain of the identity of the following species from America north of Colombia. For eight of the species recently described by me, only brief descriptive and distributional notes are presented.

Institutions from which specimens were borrowed and acronyms used in the text are given in Acknowledgments.

Neomida picea (Laporte and Brullé)
(Figs. 1, 23)

Oplocephala picea Laporte and Brullé
1831:344(20).

Arrhenoplita picea (Laporte and Brullé):
Champion, 1886:179.

Platydemia piceum: Fleutiaux and Sallé
1889:424.

Hoplocephala testaceipes Pic 1926:28.

New synonymy.

Neomida picea (Laporte and Brullé): Triplehorn 1965:375.

The only other species of *Neomida* with a single median clypeal tubercle is *N. suilla* (Champion). The latter is smaller in size, has much smaller eyes and the pronotum has coalescent lateral punctures.

The female of *N. picea* lacks clypeal tubercles, and the frontal horns (tubercles) are blunt but fairly well developed. The epipleura are entire, and the pronotum is broadly explanate as in the male.

The type specimen of *Oplocephala picea* (Cartagena, Colombia) could not be located in MNHN. Champion (1886) had a male from the type locality upon which he based his identification, and I consider it correct. In the BMNH, there are two males and two females from San Geronimo, Guatemala,

and one male labeled "Cayenne." The type of *H. testaceipes* Pic could not be located in MNHN. My above synonymy is based on the description alone which, although brief, is adequate, especially when the French Guiana type locality is considered.

Specimens examined.—53 from the following localities: BRAZIL (Iguaçu Falls; Nova Teutonia, Santa Catarina; Santarém). COSTA RICA (Guanacaste Prov., Volcan Miravalles; Alejuela, nr. Guayabal). FRENCH GUIANA (St. Laurent du Maroni). GUATEMALA (San Geronimo). PANAMA (Alhajuelo; Barro Colorado Island; Cerro Azul). SURINAME (Brokopondo Dist.). VENEZEULA (Suapure, Caura River).

Hosts.—Host data on MCZC specimens from Barro Colorado Island include: *Ganoderma applanatum* (Pers.) Pat., *Ganoderma* sp., and *Trametes scabrosa* (Pers.) G. Cunn.

Neomida suilla (Champion)
(Fig. 2)

Arrhenoplita suilla Champion 1896:11.

Neomida suilla (Champion): Triplehorn 1965:375; Marcuzzi 1984:87

This species differs from all other New World *Neomida*, except *N. picea*, in having a single prominent median clypeal tubercle. In *N. suilla*, the eyes are quite small, separated ventrally by about 3X the diameter of one eye and extending medially to a point in line with the antennal base; in *N. picea*, the eyes are separated ventrally by about the diameter of one eye. *Neomida picea* is approximately twice the size of *N. suilla* (2.0–2.2 mm).

The type locality of this species is Kingstown, St. Vincent, West Indies. It was described from two males and one female (BMNH). In order to stabilize the name, I have selected and so labeled one of the males as lectotype.

Specimens examined.—In addition to the types from St. Vincent, I have seen one male (of the three mentioned by Champion) from Guadeloupe (BMNH) and one male



Figs. 1-6. *Neomida* spp., lateral aspect of male head, 1. *N. picea* (Panama: Cerro Azul). scale bar = 1.0 mm. 2. *N. suilla* (Brazil: Recife). scale bar = 0.5 mm. 3. *N. cioides* (Mexico: S. L. P., El Salto Falls). scale bar = 0.5 mm. 4. *N. occidentalis* (Mexico: Baja California Sur, El Triunfo). scale bar = 1.0 mm. 5. *N. paurocera* (El Salvador, Quetzaltepec). scale bar = 1.0 mm. 6. *N. obsoleta* (Panama: Barro Colorado Is.). scale bar = 1.0 mm.

labeled: Recife, Pernambuco, Brazil, IV-1970, L. Xavierrillo (USNM).

Neomida cioides (Champion)
(Figs. 3, 24)

Arrhenoplita cioides Champion 1886:180,
pl. 8, Fig. 9.

Neomida cioides (Champion): Triplehorn
1965:375.

This species is extremely variable in regard to cephalic armature. In the most highly developed males, the frontal horns are long, forward-projecting, and curved down-

ward apically, with a sharp bridge connecting the bases. The head is deeply excavate behind the bridge and there are usually two small but prominent acute tubercles on the bridge. The frons is almost vertical in lateral view. The clypeal tubercles are small, and located on the margins of the clypeus.

The eyes are very small as in *N. suilla* and in fact, except for the armature of the head, *N. cioides* is very similar to that species. The pronotum is coarsely and densely, almost reticulately punctured, and the sides are broadly explanate (both ♂ and ♀). The antennae are usually bicolored, with the basal and three apical antennomeres distinctly lighter.

Specimens from the West Indies lack the two small horns on the bridge between the frontal horns, the dorsal punctation is much denser and the dorsal surface luster is duller. The two males from Brazil lack the bridge between the horns and the horns themselves are short (about half normal size).

This species was described from a single male from Caldera in Chiriquí, Panama (BMNH).

Specimens examined.—88 from the following localities: BOLIVIA (Santa Cruz). BRAZIL (Maranhão, Aldeia Aracu; Pará, 50 km e. of Candide; Santarém). COSTA RICA (3 km se Turrialba). DOMINICA (Clarke Hall). DOMINICAN REPUBLIC (Boca Chica; San Cristóbal) ECUADOR (Napo Limancocha). GUADELOUPE. MEXICO (Cordova; Fortin de las Flores; 9 km n. Tamazunchale; 3 km e. Xilitla; El Salto Falls, 12 km nw El Naranjo; 4 mi sw Veracruz; 2 mi. ne Bochil, Chiapas; Jct. Rts. 190 and 195, Chiapas; Landa de Matamoros, Queretaro). PANAMA (Barro Colorado Island; Caldera in Chiriquí; Fort Sherman; Madden Dam; Paraíso) PERU (Tambopala Prov., 15 km ne. Pto. Maldonado). SURINAME (Brokopondo Dist., Mazaroni Plateau, Brownsberg Natuurpark). TRINIDAD (Simla).

Hosts.—Host data accompanying specimens collected by J. F. Lawrence include:

Auricularia polytricha (Mont.) Sacc., *Ganoderma applanatum* (Pers.) Pat., *Ganoderma* sp., *Polyporus concrescens* Mont., *P. tenuis* Schwein., *P. sector* (Ehrenb.) Fr., *P. lignosus* Klotzsch, *Pleurotus* sp., *Trametes corrugata* (Pers.) Bres., and Agaricaceae.

Neomida occidentalis (Champion), **new combination**
(Figs. 4, 25)

Arrhenoplita occidentalis Champion 1893: 537.

Neomida myllocnema Triplehorn 1965:386, pl. 6, Fig. 59. **New synonymy.**

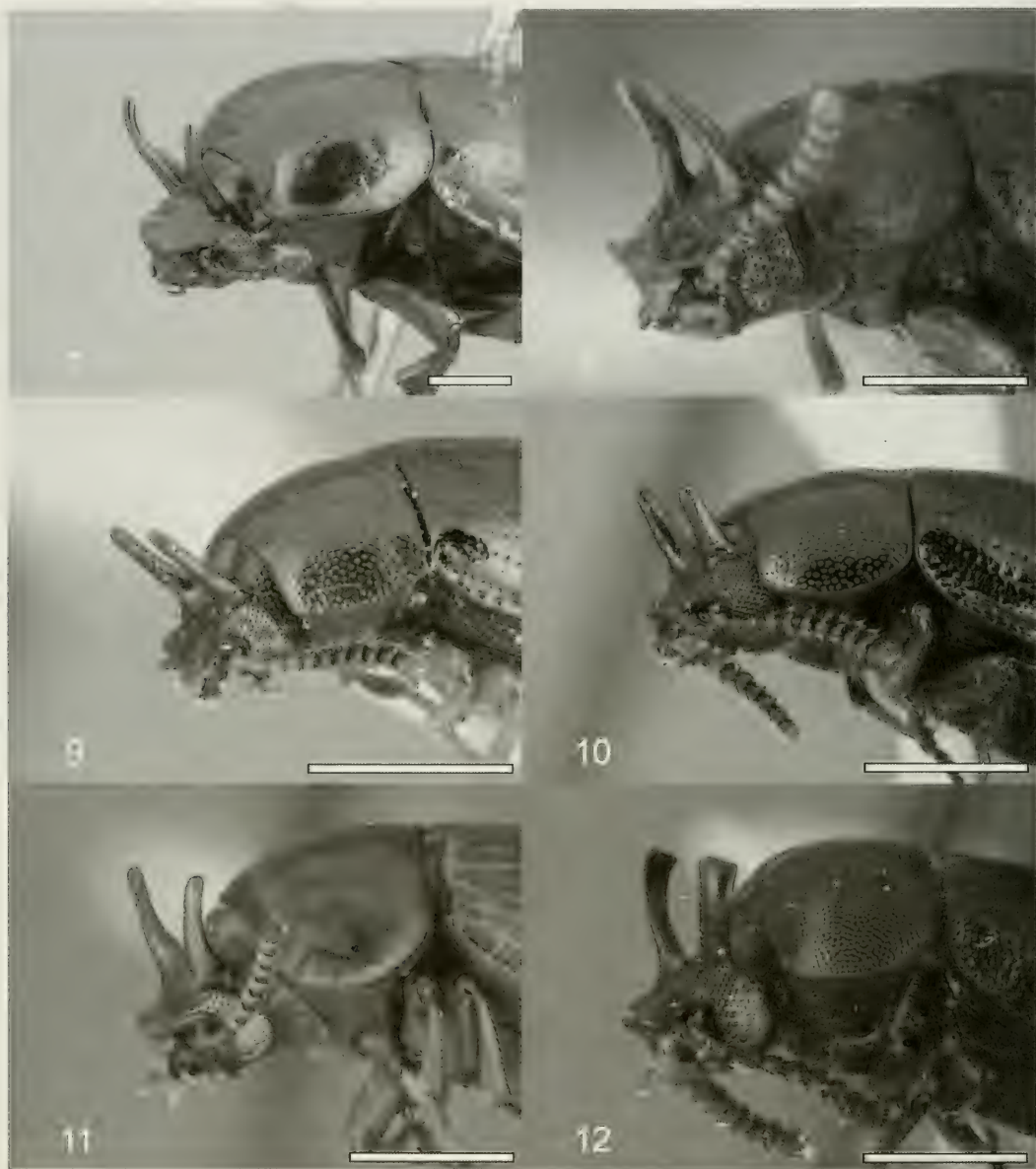
As Champion pointed out, "it is not very closely allied to any other members of the genus." This is the only species known to me with abrupt basal pronotal angles, the entire epipleura is shared with only five others (see key), and the convex elytral intervals are likewise an unusual characteristic.

Both males and females are armed with frontal horns; the horns of the male are much longer and are bowed inward apically. Also, the frons of the male is distinctly excavate, shiny, and minutely punctured between the horns.

Examination of the unique type (BMNH) prompted the above synonymy. The holotype is from Acapulco [Guerrero], Mexico and is not in very good condition, a fact mentioned by Champion (1893). Furthermore, although I did not dissect it, the short, stout horns suggest that it is a female (not a male as indicated by Champion).

When I described *N. myllocnema*, I had seen only eleven specimens, ten of which were from Baja California and the other from Mazatlán, Sinaloa. Since then, I have seen 25 more (see list below).

Specimens examined.—25 from the following localities: COSTA RICA (Guanacaste Province, Palo Verde Research Station, 24-VII-1975, J. Doyen, 2 ♂, CISC). HONDURAS (Francisco Morazán, Zamorano). MEXICO (*Baja California, Sur*, 7 mi nw El Triunfo, Summer, 1950, H.B. Leech, 2 ♂, 2 ♀, OSUC; 24 km e Todos Santos,



Figs. 7-12. *Neomida* spp., lateral aspect of male head. 7, *N. lateralis* (Costa Rica: Heredia). scale bar = 1.0 mm. 8, *N. inermis* (Costa Rica, n. slope Volcán Miravalles). scale bar = 0.5 mm. 9, *N. bicornis* (Delaware: Glasgow). scale bar = 1.0 mm. 10, *N. aeneipennis* (Costa Rica: Guanacaste Prov.). scale bar = 1.0 mm. 11, *N. ferruginea* (Georgia: Volusia County). scale bar = 1.0 mm. 12, *N. punctatissima* (Mexico: Jalisco). scale bar = 1.0 mm.

Rancho La Burrera, 12-IX-1981, W.E. Steiner, 1 ♂, 2 ♀, W.E. Steiner collection; Santa Rosa, holotype, allotypes and paratypes of *N. myllocnema*, 3 ♂, 3 ♀, USNM); (Guerrero, Acapulco, holotype, ♀, BMNH); (Jalisco, Est. de Biología Cha-

mela, 28-V-1982, Atkinson and Equihua, 2 ♂, 2 ♀, CEAM); (Puebla, 45 mi n Acatlan, 30-VII-1963, J. Doyen, 2 ♂, CISC); (Sinaloa, Mazatlán, 4-IV-1918, Kusche, 3 ♂, USNM; Mazatlán, 28-III-1918, 1 ♀, CISC)

Host.—The series from El Triunfo was

collected from *Fomes applanatus* (Pers.) Wallr.

Neomida pentaphylloides (Champion)

Arrhenoplita pentaphylloides Champion 1886:180.

Neomida pentaphylloides (Champion): Triplehorn 1994:424

This differs from the other species of *Neomida* with entire epipleura in having a small barb near the base of each frontal horn, no trace of clypeal tubercles, and an excavation behind the frontal horns. It is most similar to *N. deltocera* (Triplehorn 1994) (see remarks under that species).

There are four specimens from Capetillo and four from Cerro Zunil, Guatemala in the BMNH, all labeled syntypes. For nomenclatorial stability, I have selected and so labeled a male from Capetillo as lectotype. I have not seen any other specimens.

Neomida deltocera Triplehorn

Neomida deltocera Triplehorn 1994:423, Figs. 6, 14.

This small species is similar to *N. pentaphylloides* (Champion 1886), but does not have an excavation behind the frontal horns and it does have clypeal tubercles in the male (lacking in *N. pentaphylloides*).

The type locality of this distinctive species is Barro Colorado Island, Canal Zone, Panama. It also occurs in Costa Rica, Suriname, French Guiana, Brazil, and the Caribbean island of Dominica. It has been collected on *Ganoderma applanatum* (Pers.) Pat., *G. zonatum* Murrill, *G. nitidum* Murrill, and *Fomes sclerodermeus* (Lev.) Sacc. I have seen several hundred specimens.

Neomida acera Triplehorn

Neomida acera Triplehorn 1994:426, Figs. 8, 16.

There is no external sexual dimorphism in this species; both males and females lack both frontal horns and clypeal tubercles. There is slight sexual dimorphism in the

following two species, both of which are similar to *N. acera*.

The type locality of this species is Barro Colorado Island, Canal Zone, Panama. It also occurs in Costa Rica and most of the 34 specimens I have seen were collected on *Fomes* (= *Nigrofomes*) *melanoporus* (Mont.) Sacc.

Neomida paurocera Triplehorn

Neomida paurocera Triplehorn 1994:424, Figs. 7, 15.

This is similar to the following species, *N. obsoleta* (Champion), but is smaller, lacks clypeal tubercles in either sex, and has very tiny frontal tubercles, even in the male. No host data are available on this species.

The type locality of this species is Copan Ruins, Honduras; it also occurs in El Salvador.

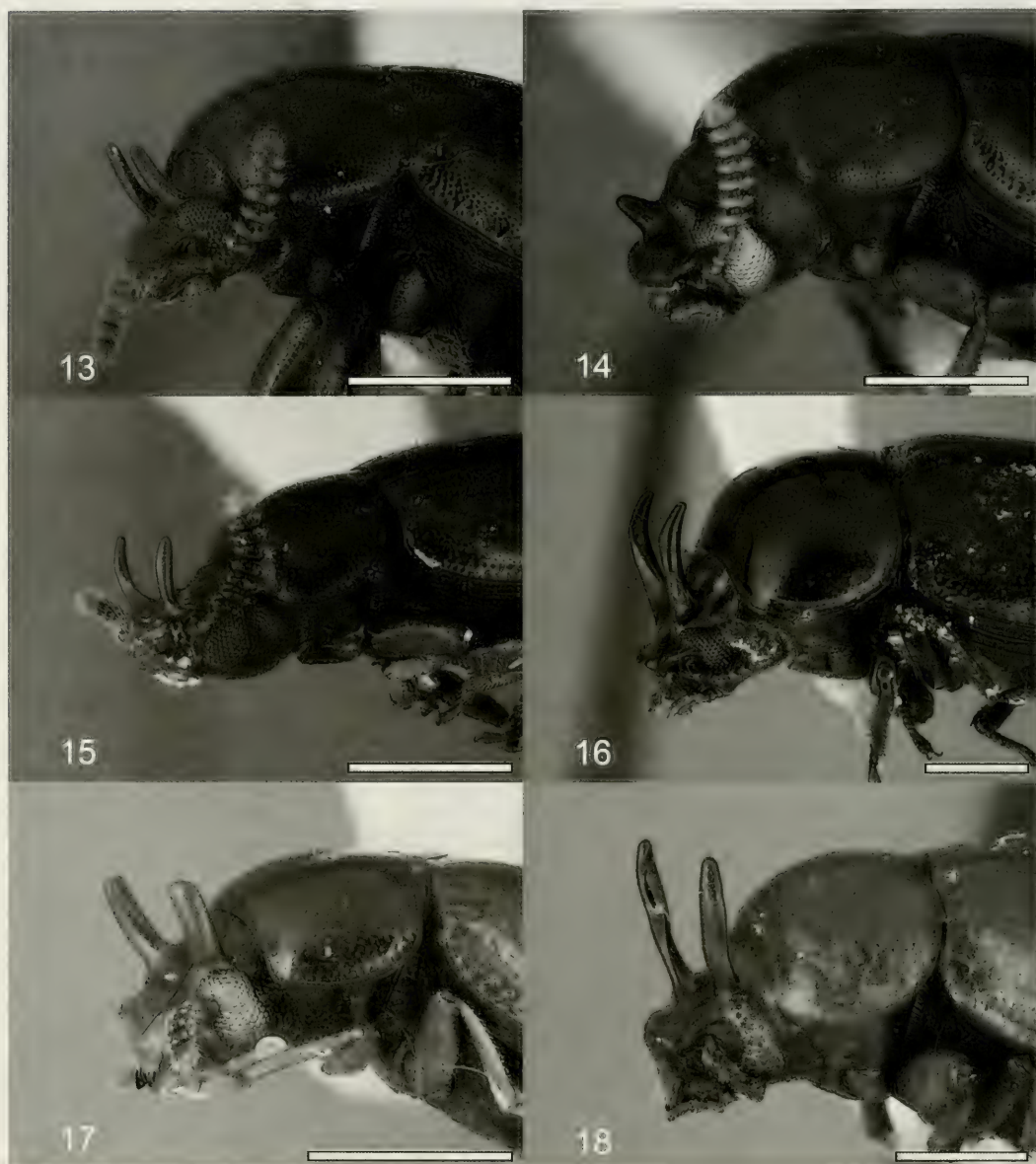
Neomida obsoleta (Champion), **new combination**
(Figs. 6, 26)

Arrhenoplita obsoleta Champion 1886:178.

In *N. obsoleta*, there is very little development of frontal armature in the male, only small tubercles on the inner margins of the eyes. The clypeal tubercles, on the other hand, are quite prominent. The female has only a slight indication of the frontal tubercles and completely lacks clypeal tubercles.

This species was described from the State of Veracruz, Mexico (Cordoba, Jalapa). Although I studied specimens from the type series (BMNH), I failed to select a lectotype.

Specimens examined.—133 from the following localities: BELIZE (Toledo District, Blue Creek Village and Columbia Forest). COSTA RICA (Guanacaste and Turrialba). MEXICO (Cordoba; Jalapa; Oaxaca, 4.5 mi s. Valle Nacional; 4 km s Vera Cruz). PANAMA (Barro Colorado Island).



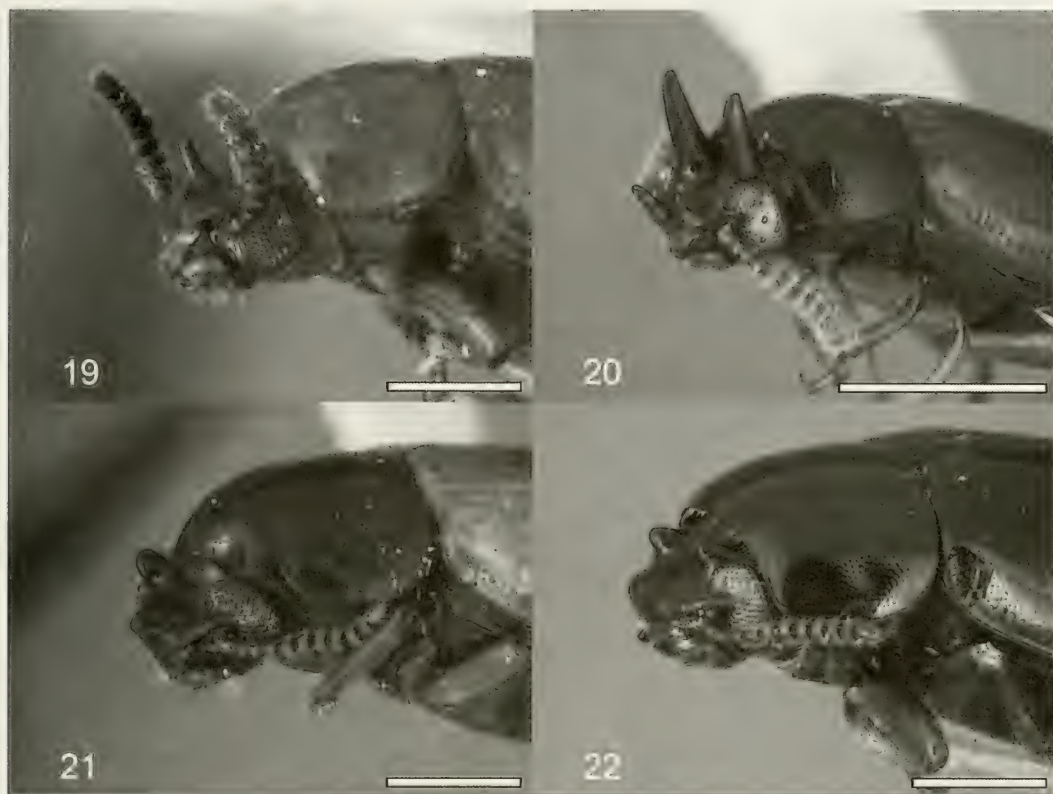
Figs. 13–18. *Neomida* spp., lateral aspect of male head. 13, *N. hoffmanseggi* (Panama: Barro Colorado Is.). 14, *N. castanea* (Panama: Cocle Prov., El Valle). 15, *N. nigricornis* (Panama: Panama Prov., Las Cumbres). 16, *N. lecontei* (Honduras: Olanchito, Muralla). 17, *N. divergicornis* (Mexico: Chiapas, Lagunas de Montebello). 18, *N. distans* (Panama: Barro Colorado Is.). Scale bars = 1.0 mm on all.

Neomida heterocera Triplehorn

Neomida heterocera Triplehorn 1994:421, Figs. 4, 12.

The type locality of this species is Costa Rica, Guanacaste, W slope Volcán Miravalles

(150 specimens in type series). One male specimen was collected at Las Cumbres, Panama, 29 May, 1975 by Henk Wolda. This is the only species of *Neomida* known to me in which the frontal horns are asymmetrical (right horn longer and stouter than the left).



Figs. 19–22. *Neomida* spp., lateral aspect of male head. 19, *N. telecera* (Costa Rica: w slope Volcán Miravalles). scale bar = 0.5 mm. 20, *N. atricollis* (Brazil: Rondônia). scale bar = 1.0 mm. 21, *N. luteonotata* (Brazil: Rio de Janeiro). scale bar = 1.0 mm. 22, *N. vitula* (Brazil: Rio de Janeiro). scale bar = 1.0 mm.

Neomida lateralis (Bates), **new combination**
(Figs. 7, 27)

Hoplocephala lateralis Bates 1873:204.

Hoplocephala dytiscoides Chevrolat 1877:

170. **New synonymy.**

The most distinctive characteristics of this species are the large size (greater than 8 mm in length) and horizontal prosternal process. It is very similar to *N. lawrencei* and not greatly different from *N. lecontei*, both of which are among the largest in the genus. In the latter two, the frontal horns of the male are curved slightly backward apically whereas in *N. lateralis* they are perfectly straight.

Hoplocephala lateralis was described from a male and female labeled “Columbia” (BMNH). For nomenclatorial stability

I designate the male as the lectotype. The type of *H. dytiscoides* was not found in MNHN; the above synonymy is based on size and distribution.

Specimens examined.—31 from the following localities: COLOMBIA (♂ and ♀ types, BMNH). COSTA RICA (Vera Blanca, 7-VII-1928, 1,700 m, F Nevermann, “in trochnem Holzigen Polyporus,” 2 ♂, 4 ♀, USNM; Cocos Island, Wafer, II-1970, L. D. Gomez P., 2 ♀, USNM; Guanacaste Prov., Volcán Miravalles, 2 ♂, CISC; Puntarenas: Monteverde, 22–24-May-85 Gilbert, Sullivan, Hovore, CDFA; 2 ♂, 3 ♀, Puntarenas, Rio Negro, 25 km ne La Union, 1,500 m, 20-Feb-1965, J. B. Karen (EMUS); 3 ♂, 3 ♀, Heredia, P. N. Braulio Carrillo, sector Cerro Cacho Negro, 15-VII-88, 2,136 m, A. Cachon (INBC). PANAMA (Chiriquí, 2.0 km w Cerro Punta, 17-VI-1973, 2,240 m,

Erwin & Hevel, 3 ♂, 4 ♀, USNM; Cerro Punta, 11-I-1964, L. J. Bottimer, 1 ♂, CNCI). VENEZUELA (Colonia Tovar, 3 ♂, 2 ♀ (MNHN); type series of *N. dytisoides*; Caracas; Country label only, 3 ♀, HNC).

Neomida pogonocera Triplehorn

Neomida pogonocera Triplehorn 1994:422, Figs. 5, 13.

The most diagnostic features are the long setae at the apex of the frontal horns, the stout somewhat recurved clypeal tubercles, and the pale dorsal coloration. It is most similar to *N. inermis* (Champion). It has been collected on *Ganoderma* sp.

The type locality of this species is Barro Colorado Island, Canal Zone, Panama. I have also seen specimens from Brazil, Bolivia, Peru, and Venezuela, a total of 20 specimens.

Neomida inermis (Champion)
(Figs. 8, 28)

Arrhenoplita inermis Champion 1886:179.
Neomida inermis (Champion): Triplehorn 1965:375.

This species is most like *N. pogonocera*, the only other small species of *Neomida* with confusedly punctured elytra in which the frontal horns of the male are long, slender, and convergent. It also resembles *N. clavicornis* in this latter respect, but that species is much larger and has punctate-striate elytra.

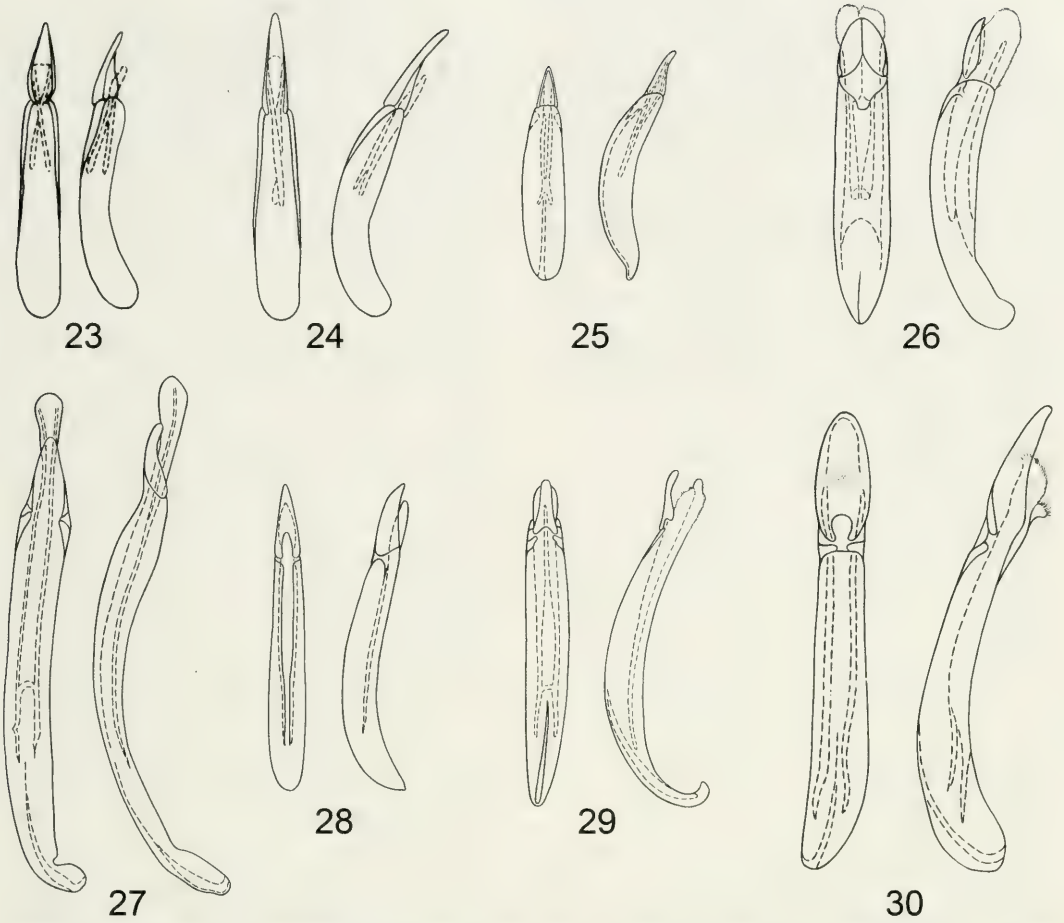
The description was based on six specimens collected by Champion at Zapote, Guatemala. Only three of these are still in the BMNH. I examined two of the three and both are females. I am convinced that Champion merely guessed that both sexes were represented in his small series, that he never saw a male, and presumed that both sexes lacked frontal horns, thus prompting the unfortunate specific epithet. A lectotype was not designated.

Several sizeable series of this species were collected by J. F. Lawrence on *Hexagonia hydroides* (Sw.) M. Fidalgo in Pan-

ama (Barro Colorado Island, Fort Sherman, and Madden Dam). Another large series (24 ♂, 59 ♀) was collected by J. T. Doyen in Guanacaste Province, Costa Rica, w. slope Volcan Miravalles, 3,000 ft. Both sexes were about equally represented. I initially thought this was an undescribed species until I saw the types.

Since most of my taxonomic conclusions in *Neomida* are based on the male, I am supplying the following redescription of *N. inermis*, based on the description prepared when I thought it to be a new species.

Male.—Small, elongate-oval, strongly convex, reddish brown, shining, head with two extremely long, slender, porrect, strongly convergent frontal horns in contact laterally with eyes and curving slightly forward, widely separated at base and conspicuously hairy on apical half; entire fronto-occipital area strongly concave, perfectly smooth and impunctate; clypeus smooth, impunctate, with two well-developed, flattened, porrect tubercles in contact with and smoothly continuous with anterior margin; genal shelf strongly rounded, margin reflexed, very thin; eyes large, broadly oval and deeply emarginate anteriorly, no trace of postocular concavity; antennae yellowish, outer seven segments strongly transverse, forming rather compact club; terminal segment of maxillary palpus narrowly oval; mentum heavily bearded with fine, stiff, erect, pale setae. Pronotum strongly transverse, widest behind middle, all angles strongly rounded, base very feebly bisinuate, anterior margin strongly bisinuate with well defined median lobe; surface strongly, densely and uniformly punctured. Elytra slightly wider than pronotum, lateral margins parallel, straight; surface with scattered, closely spaced but very shallow and inconspicuous punctures, each of which bears a very short, pale, more-or-less recumbent seta. Ventral surface reddish brown, legs paler; flanks of prothorax strongly, confluent punctured, prosternal process narrow between coxae, apex strongly deflexed; protibia not expanded; all



Figs. 23–30. Aedeagi of *Neomida* spp., dorsal and lateral aspects. 23, *N. picea*. 24, *N. cioides*. 25, *N. occidentalis*. 26, *N. obsoleta*. 27, *N. lateralis*. 28, *N. inermis*. 29, *N. punctatissima*. 30, *N. hoffmanseggii*.

tarsi clothed beneath with long, yellowish setae; metasternum strongly shining, practically impunctate medially and with a well-defined median longitudinal incised line; abdominal sterna coarsely and densely punctured, densely pubescent; epipleura abbreviated beyond last visible abdominal suture. Length: 2.0–2.7 mm.; width: 1.0–1.3 mm.

Female.—Similar to male but without trace of cephalic armature. Clypeal suture well-defined, clypeus convex, sparsely punctate; interocular surface slightly and uniformly convex, coarsely and densely punctate; slightly swollen indications of tubercles at inner margins of eyes; genal shelf

thicker than in male and not at all reflexed. Length: 2.2–2.9 mm.; width: 1.0–1.4 mm.

Variation.—Some males have the cephalic armature drastically reduced. When the frontal horns are small, there is a corresponding reduction in the size of the clypeal tubercles. In the most poorly developed males, the horns are merely conical tubercles and the clypeal tubercles are barely traceable. The fronto-occipital area is, however, deeply concave and smooth as usual. The only variation in the females is in the development of the frontal tubercles. At best, these are merely slight swellings on the inner margins of the eyes but sometimes they are totally absent.

Neomida bicornis (Fabricius)

(Fig. 9)

Hispa bicornis Fabricius 1776:215 (for complete synonymy, see Triplehorn 1965:377).

This is the only shining, metallic species of *Neomida* in America north of Mexico. It undoubtedly occurs in every state east of the Mississippi River and some of the states bordering it to the west (Texas, Kansas) and well into eastern Canada. It varies clinally in coloration; individuals from Canada and northern United States are almost invariably unicolorous green dorsally whereas those from extreme southern states almost always have the pronotum reddish. In the West Indies, the dorsal coloration is usually blue rather than green. This phenomenon is discussed in detail in my 1965 paper (pp. 378–380).

Neomida aeneipennis Triplehorn

(Fig. 10)

Neomida aeneipennis Triplehorn 1965:382, pl. 6, Figs. 62, 64.

This species was originally determined as *A. bicornis* by Champion (1866). It differs from that species by its larger size, finely punctured and setose abdominal sterna, and short, obtuse clypeal tubercles. The aedeagus is likewise diagnostic.

The holotype male and allotype female from Rio Hondo, British Honduras (Belize), are deposited in BMNH.

Neomida aeneipennis and *N. bicornis* are completely allopatric. In addition to the records already published: Mexico (San Luis Potosí, Tamaulipas, Veracruz, Yucatán), Guatemala (Capetillo, Guatemala City, Zapote) and Nicaragua (Ometepe), I now have records of 73 more from the following localities:

Specimens examined.—COSTA RICA (Guanacaste Province, Taboga). EL SALVADOR (San Salvador; 10 mi n. Quetzaltepeque). HONDURAS (Isla Roatan). MEXICO (Chiapas, Hidalgo, Oaxaca, Puebla, Queretaro, Quintana Roo).

Neomida ferruginea (LeConte)

(Fig. 11)

Evoplus ferruginea LeConte 1866:128; Bates 1873:234; Horn 1870:366.

Oplocephala castanea Motschulsky 1873:467 (not Bates 1873:204).

Arrhenoplita ferruginea (LeConte): Champion 1886:176.

Hoplocephala ferruginea: Gebien 1911:368.

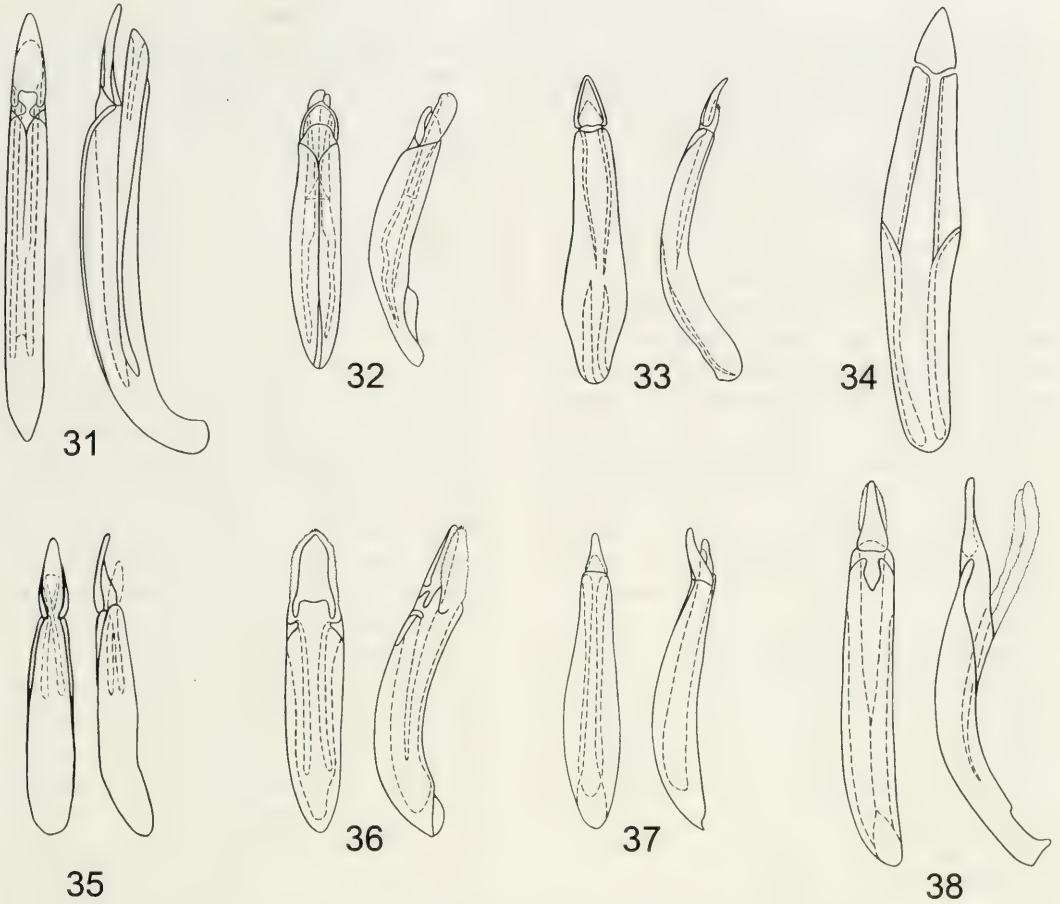
Neomida ferruginea (LeConte): Triplehorn 1965:384; Marcuzzi 1984:88.

This species may be recognized by the deep pits behind the eye and horn on either side of the head. Only the much larger *N. lawrencei* and the coarsely punctured *N. punctatissima* share this character. The elytral intervals are usually (except those from Jamaica) distinctly convex.

The male holotype of *E. ferruginea* was described from Louisiana (MCZC type No. 4671). My remarks (1965:385), comparing *N. ferruginea* with *N. lecontei* were based on my misidentification of the latter. This was discovered when I examined the type. Specimens upon which I reported from Jamaica, while slightly different in sculpture, punctuation and luster, appear to be conspecific with *N. ferruginea*; the genitalia are identical.

The name *Oplocephala ferruginea* Motschulsky was applied to a species from the East Indies. The resulting homonym was resolved by Gebien (1910:369) who supplied the name *Hoplocephala orientalis* Gebien as a replacement for the East Indian species.

Motschulsky is also responsible for another homonym involving the present species. In 1873, he used the name *Oplocephala castanea* for a species described from New Orleans, Louisiana (by coincidence, Louisiana is the type locality of *N. ferruginea* LeConte 1866). There is no question about that synonymy. Also, in 1873, Bates used the name *Hoplocephala castanea* for a species he described from Colombia, thus that name became a homonym as well as a synonym. I have established the publication



Figs. 31–38. Aedeagi of *Neomida* spp., dorsal and lateral aspects. 31, *N. clavicornis*. 32, *N. castanea*. 33, *N. nigricornis*. 34, *N. distans*. 35, *N. telecera*. 36, *N. atricollis*. 37, *N. luteonotata*. 38, *N. vitula*.

dates for Bates (February) and Motschulsky (July) and, therefore, *N. castanea* Bates is the valid name for the Colombian species.

Specimens examined.—As already reported (Triplehorn, 1965:386), this species occurs commonly in Alabama, Florida, Louisiana and Texas. I can now add Georgia to the list from the United States. South of the United States border, I have seen approximately 100 specimens from the following localities: BELIZE (Manatee District; Toledo District). COSTA RICA (Guanacaste Province; Puntarenas Province; La Selva; 4 km w. Ouayabo; nr. Guayabal; Volcan Miravalles). CUBA (Soledad). DOMINICAN REPUBLIC (Trina,

near Morca). GUATEMALA (Tikal; Baja Vera Paz; Duenas). GUYANA (Augustine; Bartica). HAITI (Ennery). JAMAICA (Balaclava; Pt. Antonio). MEXICO (States of Colima; Hidalgo; Nayarit; Puebla; San Luis Potosi; Sinaloa; Tabasco; Tamaulipas; Veracruz). PANAMA (Alhajuelo; Barro Colorado Island; Bouquete; Cerro Campana; Chiriquí; Fort Sherman; La Chorro).

Hosts.—Host data accompanying specimens collected in Panama and Costa Rica by J. F. Lawrence include: *Ganoderma applanatum* (Pers.) Pat., *G. zonatum* Murrill, *Ganoderma* sp., and *Fomes sclerodermeus* (Lev.) Sacc.

Neomida punctatissima (Champion)

(Figs. 12, 29)

Arrhenoplita punctatissima Champion 1893:537.*Neomida punctatissima* (Champion): Triplehorn 1994:422.

In both the male and female of this species, the head, pronotum and elytra are very coarsely and densely, almost rugosely punctured. In the male, the frontal horns are widely separated (as in *N. distans*), broadly flattened, curved slightly inward apically and abruptly truncate; the clypeal tubercles are acute, prominent and rather widely separated; another tubercle, almost equally prominent is situated on the antennary orbit between the clypeus and eye.

This species was described from two males and a female from Acapulco Guerrero, Mexico, collected by Höge. For nomenclatorial stability, I have selected and so labeled one of the males as a lectotype.

Specimens examined.—11 (6 ♂, 5 ♀)—MEXICO (Jalisco, Est. de Biología Chamela, 28-V-1982, 100 m, Atkinson & Equihua, basidiocarpà de poliporo (OSUC and CEAM).

Neomida lawrencei Triplehorn*Neomida lawrencei* Triplehorn 1994:419, Figs. 2, 10.

This species closely resembles *N. lecontei* which has almost identical frontal horns but lacks the sharp bridge connecting the horns at the base. Also, *N. lawrencei* has deep postocular pits and the head and pronotal punctures are very minute. The male aedeagus is quite diagnostic (Triplehorn 1994, Fig. 10).

The type locality of this species is Osa Peninsula, 2.5 mi sw. Rincón, Puntarenas, Costa Rica. It has been collected several other places in Costa Rica as well as in Belize (Toledo District, Blue Creek Village), Panama (Barro Colorado Island) and Mexico (Oaxaca and Hidalgo). Fungus hosts include *Ganoderma nitidum* Murrill, *G. applanatum* (Pers.) Pat., and *Phellinus* sp.

Neomida hoffmanseggii (Laporte andBrullé), **new combination**

(Figs. 13, 30)

Oplocephala Hoffmanseggii Laporte and Brullé 1831:346(23).

This species lacks tubercles or horns on the clypeus in either sex. The anterior margin of the clypeus is quadrate, narrowly reflexed and continuous with the similarly reflexed margins of the genae. The frontal horns of the male are thin, cylindrical and widely separated. The frontal tubercles of the female are more strongly developed than in most species of *Neomida*.

The type specimen of this species described from French Guiana could not be located. I am basing my determination on specimens in BMNH determined, I believe, by Bates. There are 13 specimens from Obidos, Brazil, in BMNH.

Specimens examined.—340 from the following localities: BOLIVIA (La Paz; San José). BRAZIL (Chapada; Jataí/Salesópolis; Santarém; Tapurucuará, Rio Negro; Amazonas, Rondônia, 63 km sw Ariquemes). COSTA RICA (25 mi sw. Rincón; Heredia). GUYANA (Bartica). MEXICO (Colima). PANAMA (Barro Colorado Island). PERU (Iquitos). TRINIDAD (Morne Bleu). VENEZUELA (Merida, 6 km s. Azulita; Aragua, Maracay).

Hosts.—The large series (194) collected by Zetek on Barro Colorado Island, Panama, were "bred" from Polyperaceae; those collected by Lawrence on the same island (22) were on *Ganoderma* and *Phellinus*.

Neomida clavicornis (Champion), **new****combination**

(Fig. 31)

Arrhenoplita clavicornis Champion 1886: 176, pl. 8, Fig. 7.

The abrupt six-segmented club is certainly distinctive. In addition, the pronotal punctation is coarse and dense but not to the degree seen in *N. punctatissima*. The most similar species is *N. divergicornis* (see remarks under that species).

This species, known only from the type series (BMNH), was described from six specimens in the Sallé collection collected at Cordova, Veracruz, Mexico. I studied a male (the specimen figured by Champion) and a female from the type series and, for nomenclatorial stability, have designated and so labeled the former as lectotype.

The male lectotype is in reasonably good condition except that the antennae are both broken off (the right with basal six and the left with four segments remaining). The female antennae are intact and, as Champion described, with a six-segmented club. Both antennae consist of only ten segments. This is an anomaly I have observed in no other *Neomida*. Curiously, Champion's illustration of *N. clavicornis* also indicates only ten segments but the other two species illustrated on the same page have the normal 11-segmented antennae. Champion does not mention this condition in his description.

The lectotype is precariously double-mounted and would probably fall apart if a dissection were attempted; therefore, I was unable to illustrate the genitalia.

I have been perplexed by Champion's statement following the description of *N. clavicornis*, "This is one of five allied species found by M. Sallé at Cordova." Does he mean that there are four more he chose not to describe or was he merely noting that five species of *Neomida* were collected at Cordova? Actually, he recorded six species from Cordova in the Sallé collection, four of which he described as new. Since I saw no unidentified Sallé *Neomida* at BMNH, I believe he was documenting that five species occur at Cordova.

Neomida castanea (Bates)
(Figs. 14, 32)

Hoplocephala castanea Bates 1873:204
(not Motschulsky 1873:467).

Hoplocephala oblonga Chevrolat 1878a:
XCVII. **New synonymy.**

Neomida oblonga Chevrolat: Maes and Merkl 1991:38.

The most distinctive characteristic of this species is the deep median excavation between and behind the frontal horns of the male. The excavation is sharply defined behind in a broad arc (often concealed when the head is retracted). The frontal horns, even in the most well-developed males, are relatively short, stout, and blunt as compared with other species of *Neomida*. The head is nearly impunctate (only a few widely separated, fine punctures, especially on the clypeus); clypeal tubercles are small and blunt, located on the apical margin of the clypeus; cephalic horns short to moderately long, stout and blunt.

The female has two large, broad tubercles in place of cephalic horns, the clypeal tubercles are absent and the head is finely and sparsely punctate.

This is a fairly large, stout species averaging about 6.0 mm in length and almost 3.0 mm in width. It was described from a male and female ("New Grenada," BMNH). For nomenclatorial stability, I have selected and so labeled the male as lectotype.

The types (male and female) of *H. oblonga* are glued to the same card (MNHN) and are in good condition; described from "Parahyba (= Paraiba), Brazil. Champion (1886:176) reported this species from Chontales under that name.

Specimens examined.—182 from the following localities: BRAZIL (Paraiba; Teffe, Amazonas). COLOMBIA (Country only). COSTA RICA (Heredia Province, La Selva; Las Mercedes, Santa Clara; Guanacaste Prov., Volcán Miravalles; Turrialba; Puntarenas Province, Los Alturas). ECUADOR (Río Palenque, 47 km s. Santo Domingo). FRENCH GUIANA (St. Laurent du Maroni). GUYANA (Bartica; Kamakusa). NICARAGUA (Chontales). PANAMA (Alhajuelo; Barro Colorado Island; Cerro Campana; El Valle; Finca Lerida, near Boquete; Fort Sherman; Porto Bello). PARAGUAY (San Bernadino). PERU (Tingo Mariá; Tambopata Reserve). SURINAME (Brokopondo Dist., Mazaroni Plateau, Browns-

berg Naturpark). VENEZUELA (San Estéban).

Hosts.—Data accompanying specimens include: *Fomes sclerodermeus* (Lev.) Sacc., *Ganoderma applanatum* (Pers.) Sacc., and *G. zonatum* Murrill.

Neomida nigricornis (Champion), **new combination**
(Figs. 15, 33)

Arrhenoplita nigricornis Champion 1886: 179.

I initially thought this to be a new species until I saw the type. Even the female is easy to identify since it also has bicolored antennae as in the male, has the clypeus sharply delineated (but lacking even tubercles) and strongly swollen.

The male of this species has long clypeal horns (not merely tubercles), frontal horns are completely absent and antennal segments 4–10 are black with the three basal and the apical segments light reddish brown.

Neomida nigricornis is a small species, averaging about 4.0 mm in length. It is a tribute to Champion's keen eye that he recognized this as a distinct species. Females of this genus are very difficult to determine to species.

This species was described from a unique female from San Gerónimo, Guatemala in BMNH.

Specimens examined.—53 from the following localities: BELIZE (Toledo Dist., 5-X-1906, Peck, 3 ♂, 2 ♀, Bowditch Collection, MCZC). COSTA RICA (Puntarenas Prov., 2.5 mi sw Rincón, 1–7 March, 1967, 1 ♂, MCZC; Turrialba, 30-VIII-1966, Robin Andrews, 1 ♂, MCZC; Guanacaste Province, Volcán Miravalles, 2 ♂, 3 ♀, CISC). GUATEMALA (San Gerónimo, ♀, holotype, BMNH; 6 mi e Esquintla, 11-VII-1965, A. Raske, 1 ♂, CASC). PANAMA (Barro Colorado Island, 5-24-II-1968, J. F. Lawrence, 8 ♂, 8 ♀, MCZC; same locality and collector, 11-VII-1969, 1 ♀, MCZC;

same locality, IV-X-1943, J. Zetek, 1 ♂, 4 ♀, USNM; Frijoles, 27-XI-1911, A. H. Jennings, 4 ♂, 1 ♀, MCZC; same locality, E. A. Schwarz, 1 ♂, 2 ♀, USNM; Porto Bello, 15-17-II-1911, E. A. Schwarz, 1 ♀, USNM; La Campana, VII-XI-1938, 1 ♂, 1 ♀, USNM; Las Cumbres, 21-V-1974, H. Wolda, UV light trap, 1 ♂, OSUC; Madden Dam, 18-VII-1969, J. F. Lawrence, 4 ♂, 3 ♀, MCZC; Fort Sherman, 2-IV-1967, J. F. Lawrence, 1 ♂, MCZC).

Hosts.—All specimens with host data were collected in *Hexagonia hynoides* (Sw) M. Fidalgo by J. F. Lawrence in Panama, except those from Frijoles collected by Jennings from “flowers of *Lingua de Vaca*.”

Neomida lecontei (Bates)
(Fig. 16)

Evoplus lecontei Bates 1873:233.

Arrhenoplita lecontei (Bates): Champion 1886:177.

Hoplocephala lecontei (Bates): Gebien 1911:368.

Neomida lecontei (Bates): Triplehorn, 1965: 375.

This species was described from a single male labeled “Colombia” (in BMNH). The description by Bates is excellent. The frontal horns are slender, slightly divergent from base, curved backward and slightly convergent apically, with a sharp, abrupt bridge connecting the bases (Fig. 16). The postocular depression is very shallow (as compared to *N. ferruginea*, *N. lawrencei*, and *N. lateralis*). The pronotum is finely punctured.

The female (unknown to Bates) lacks clypeal tubercles but has distinct prominences at the inner margins of the eyes (where horns of males are located).

My comments (Triplehorn, 1965:315) comparing *N. lecontei* with *N. ferruginea* were made before I examined the type. The two are really very different: *N. lecontei* averages much larger in size, has, at most, shallow postocular pits, has the distinctive

bridge uniting the bases of the frontal horns, has flat elytra intervals and the pronotum is minutely punctured, the opposite characteristics prevailing in *N. ferruginea*.

Specimens examined.—143 from the following localities: BELIZE (Toledo Dist., Blue Creek Village). BRAZIL (Amapá, Porto Platon). COSTA RICA (Puntarenas, Osa Peninsula, 2.5 mi s. Rincón). DOMINICAN REPUBLIC (Prov. Hato Mayor, Par. Nac. Los Haitises). GUADELOUPE. GUYANA (Kamakusa; Maroni; Bartica). HONDURAS (La Muralla). JAMAICA (Balaclava; Pt. Antonio; Mandeville). MEXICO (Cordoba, V. C.; Laguna de Montebello, Chiapas; Est. Biol. "Los Tuxtlas," V. C.). MONTSERRAT. PANAMA (Barro Colorado Island). PUERTO RICO (Humacao, Luquillo Expt. Forest; near Los Marias). SURINAME (Brokopondo Dist., Mazaroni Plateau). VENEZEULA (Saupure, Caura River).

Host.—The only host record is *Fomes sclerodermeus* (Lev.) Sacc. for specimens taken in Panama, Puerto Rico and Costa Rica.

Neomida divergicornis Triplehorn
(Fig. 17)

Neomida divergicornis Triplehorn 1994:
420 Figs. 3, 11.

The species closely resembles *N. clavicornis* but lacks the deep median concavity on the frons immediately behind the frontal horns. The females of the two species are likewise readily separable; in *N. divergicornis* the frons is coarsely and rugosely punctured (discretely so in *N. clavicornis*). The antenna of *N. divergicornis* has the usual eleven antennomeres; whereas *N. clavicornis* has only ten.

The type locality of this species is 10 mi west of Panuco, Veracruz, Mexico. Since the description, I have seen three more (2 ♂, 1 ♀) labeled as follows: 1.8 mi. w. Lagunas de Monte Bello, Chiapas, Mexico (5,000'), VII-27-66, N. Chernoff (OSUC).

Neomida distans (Champion), **new combination**
(Figs. 18, 34)

Arrhenoplita distans Champion 1886:178,
pl. 8, Figs. 8, 8a.

Males of this species have the frontal horns widely separated at the base (Fig. 18), with the area between them broad, flat, shiny and virtually impunctate. In well-developed major males (none available to Champion), there is a distinct tooth, facing inward about midway between base and apex of each horn. The male also has a distinct yellowish tubercle on the mentum.

In the female, the cephalic horns are reduced to mere tubercles and the clypeal tubercles are much smaller than in the male. A faint Y-shaped raised area is present with the two arms bridging the two frontal tubercles and the base extending posteriorly on the occiput. The frontal area has fine but very sparse punctures and the mentum does not have a large median tubercle. The pronotum of the male is more convex and anteriorly abruptly declivous than that of the female.

This is a large species, averaging from 5.7 to 6.5 mm in length and 2.9 to 3.2 mm in width (both sexes).

There are four syntypes of this species (Cordova, Mexico, 1836, Sallé Collection, BMNH). For nomenclatorial stability, I have selected and so labeled the male figured by Champion as lectotype.

Specimens examined.—60 from the following localities: BOLIVIA (El Beni, Beni Sin, Palm Camp, Alto Bosque, NE San Borja). BRAZIL (Manaus, Mann & Baker; Tefé (Ega), 1878; Porto Platon, Amapá, IX-1957, K. Lenko; Rondônia 62 km sw Ariquemes). COSTA RICA (Osa Peninsula, Puntarenas, 21-28-II-1967). MEXICO (type series, Cordova). PANAMA (Barro Colorado Island, 6, 10-II-1968, 7-IV-1967, J. F. Lawrence). PERU (Chambireachu, Hualaga, IV-VIII-1885, M. de Mathau; Tambopata Prov., 15 km ne. Pto. Maldonado; nr. Ramon Castilla, 26-II-1974; Anapati, 80 km se. Satipo, 31 July, 1972). SURINAME

(Brokopondo Dist., Mazaroni Plateau, 20-24-VII-1982, W. E. Steiner).

Hosts.—Host data accompanying Panama specimens collected by Lawrence include: *Fomes sclerodermeus* (Lev.) Sacc., and *Ganoderma* sp.

Neomida dolichocera Triplehorn

Neomida dolichocera Triplehorn 1994:417, Figs. 1, 9.

The large size (7.5 to almost 8 mm in length), the long slender horns, and the flat, smooth head are distinctive. The female is unknown.

The type locality for this species is Costa Rica, Heredia Province, La Selva Research Station. It is known from only 14 specimens, all from Costa Rica. Only one additional specimen was studied since the description: Guanacaste Prov., Est. Pitilla, (700 m), 9 km s Sta. Cecilia, III-1991, C. Marango + P. Rica, (INBC).

Neomida telecera Triplehorn, new species

(Figs. 19, 35)

Holotype male.—Small, elongate-oval, strongly convex, light reddish brown, shining. Head with two short, blunt, cylindrical horns between and in contact with inner margins of eyes; horns porrect and subparallel; vertex flat, smooth, almost impunctate, not differentiated from frons; clypeus flat, slightly raised, almost impunctate, with two, small, widely spaced tubercles at corners; clypeal margin continuous with genae, slightly reflexed; eyes large, only slightly emarginate, with dorsal lobe much smaller than ventral lobe; antennae with distal seven antennomeres forming a moderately defined club, fourth antennomere with only anterior portion expanded; maxillary palpus elongate-oval, rounded apically; mentum convex, impunctate, sparsely setose. Pronotum strongly convex, widest near middle, all angles obtusely rounded, anterior margin straight, posterior margin feebly bisinuate, lateral margins narrowly reflexed; surface

smooth, uniformly finely but not densely punctate. Elytra subequal in width to pronotum at base, lateral margins straight and parallel, surface smooth and shiny, indistinctly punctate-striate, intervals flat and with punctures only slightly smaller than those of striae. Ventral surface concolorous with dorsum, hypomera finely, longitudinally wrinkled; prosternum smooth, finely punctate, prosternal process gradually deflexed behind, its apex not prominent; protibiae straight, not expanded apically, finely punctate and setose; all tarsi clothed beneath with long, fine, sparse setae; meso- and metasternum rather coarsely punctate laterally, practically smooth medially; mesosternum shallowly notched anteriorly; metasternum with median incised line deep, extending more than halfway from base to anterior margin; abdominal sterna shiny and microreticulate, finely, shallowly and sparsely punctate; epipleura abruptly abbreviated opposite middle of last visible abdominal sternum. Aedeagus as in Fig. 35. Length: 3.0 mm; width: 1.3 mm.

Allotype female.—Similar to male in size, coloration, and punctation; differs in lacking frontal horns and clypeal tubercles; the clypeus is raised as in the male, distinctly set off from frons and deflexed anteriorly. Length: 3.7 mm; width: 1.5 mm.

Variation.—In the six males available for study, there is the usual variation in length of the frontal horns, but the range is not as great as in most species.

Types.—Holotype male, allotype female, and nine paratypes (1 ♂, 8 ♀). Costa Rica, Guanacaste, w. slope Volcán Miravalles [no date], 3,600–3,800 ft. J. T. Doyen, ex *Inonotus* sp.; paratypes (9 ♀, 4 ♂), same locality, collector, and host except VI-29–1993, 2,800 ft. Holotype, allotype, and paratypes in CASC; paratypes in OSUC.

Remarks.—This species is known only from the type series. Despite its small size, it resembles most closely *N. distans*, mainly because of the widely separated frontal horns (Fig. 19).

KEY TO ADULT MALES OF *NEOMIDA* (NORTH OF COLOMBIA)

1.	Epipleura extending to apex of elytra; elytra usually confusedly punctured and distinctly setose	2			
–	Epipleura abbreviated caudad of last visible abdominal suture; elytra usually punctate-striate and glabrous	7			
2(1).	Clypeus with a single median apical tubercle	3			
–	Clypeus with two tubercles or horns (or none) on or near anterior margin	4			
3(2).	Eyes large, separated ventrally by about diameter of one eye; pronotal punctures discrete laterally (Fig. 1); body length greater than 3 mm				
	 <i>N. picea</i> (Laporte and Brullé)				
–	Eyes small, separated ventrally by about 3× diameter of one eye; pronotal punctures coalescent laterally (Fig. 2); body length less than 2.5 mm (Brazil, West Indies)				
	 <i>N. suilla</i> (Champion)				
4(2').	Elytra distinctly punctate-striate; intervals convex; pronotum with basal angles squared (Fig. 4) (Costa Rica, Honduras, Mexico)				
	 <i>N. occidentalis</i> (Champion)				
–	Elytra confusedly punctured, intervals not evident; pronotum with basal angles rounded	5			
5(4').	Frontal horns long, slender, bent sharply forward (Fig. 3), joined by a sharp bridge sometimes bearing two small, acute tubercles; conspicuously setose dorsally (both pronotum and elytra); surface luster dull				
	 <i>N. cioides</i> (Champion)				
–	Frontal horns short, blunt, triangular; setae usually absent on pronotum; elytral setae short, fine	6			
6(5').	Clypeal tubercles present; no excavation behind frontal horns; deeply and longitudinally excavate between frontal horns				
	 <i>N. deltocera</i> Triplehorn				
–	Clypeal tubercles absent; transversely and deeply excavate behind frontal horns, but not deeply excavate between them (Guatemala)				
	 <i>N. pentaphylloides</i> (Champion)				
7(1').	Frontal horns represented by no more than blunt tubercles (as in females of most other species) (Figs. 5, 6)	8			
–	Frontal horns well-developed	10			
8(7).	Clypeal tubercles present (Fig. 6)				
	 <i>N. obsoleta</i> (Champion)				
–	Clypeal tubercles absent	9			
9(8').	Ventral surface of head coarsely and densely, almost rugosely punctured; frontal tubercles distinct (Fig. 5) (El Salvador, Honduras)				
	 <i>N. paurocera</i> Triplehorn				
–	Ventral surface of head finely and sparsely punctured; frontal tubercles barely evident, sexes indistinguishable externally (Costa Rica, Panama)				
	 <i>N. acera</i> Triplehorn				
10(7').	Prosternal process horizontal, apex acute and prominent; eye not quite in contact with base of frontal horn (Fig. 7); size large (length greater than 7.5 mm)				
	 <i>N. lateralis</i> (Bates)				
–	Prosternal process deflexed between procoxae, apex not prominent; eye almost always in contact with base of frontal horn; size variable but usually less than 7.0 mm in length	11			
11(10').	Frontal horns asymmetrical, right always longer, stouter, and expanded apically (Costa Rica, Panama)				
	 <i>N. heterocera</i> Triplehorn				
–	Frontal horns symmetrical	12			
12(11').	Elytra confusedly punctured (pigment spots may give illusion of striae); frontal horns long, thin, strongly converging from base to apex (Fig. 8)	13			
–	Elytra distinctly punctate-striate; frontal horns not as above	14			
13(12).	Frontal horns with dense brush of long, golden setae at apex; dorsal coloration yellowish brown; elytral setae inconspicuous				
	 <i>N. pogonocera</i> Triplehorn				
–	Frontal horns with only a few short, dark setae at apex; dorsal coloration dark reddish brown; elytral setae short but conspicuous (Costa Rica, Panama)				
	 <i>N. inermis</i> (Champion)				
14(12').	Usually entire dorsal surface, but at least elytra, green, blue or with bronze-green reflections, shiny	15			
–	Entire dorsal surface uniformly yellowish to dark reddish brown; luster variable	16			
15(14).	Clypeal tubercles prominent and acute (Fig. 9); median portions of abdominal sterna moderately coarsely and densely punctured, each puncture bearing a very short seta (Canada, United States, West Indies)				
	 <i>N. bicornis</i> (Fabricius)				
–	Clypeal tubercles short and blunt (Fig. 10); median portions of abdominal sterna finely and sparsely punctured, each puncture bearing a long, fine, recumbent seta (Mexico to Costa Rica)				
	 <i>N. aeneipennis</i> Triplehorn				
16(14').	Head deeply concave behind eye and frontal horn or tubercle	17			
–	Head not or only shallowly concave behind eye and horn or tubercle	19			
17(16).	Pronotum with lateral punctures fine and				

Diagnosis.—Small (2.4–3.6 mm); head and pronotum piceous, elytra reddish; male with clypeus and frons impunctate, shiny, narrowly reflexed apically, with two long, acute, erect tubercles positioned laterally; cephalic horns moderately stout, tapering and erect, deeply and abruptly excavate between and behind cephalic horns. Female with head coarsely and densely punctured, clypeus more finely and sparsely punctured; frons transversely swollen, with distinct tubercles (where horns in male are located). Elytra punctate-striate without traces of grooves, punctures of intervals coarse and dense (about ½ size of striae punctures); epipleura abbreviated posterior to last visible abdominal suture.

Type.—Described from one female from French Guiana (MNHN).

Specimens examined.—38 specimens examined from the following localities: BRAZIL (Rondônia, 62 km sw Ariquemes, nr Fazenda Rancho Grande, 12-IX-92, II-1993, and 8-20-XI-1994; Tapurucuara, Amazonas, Rio Negro, 13-11-1963. C. Lindeman). BOLIVIA (Guayaramerin, Beni, Estancia Esperanza, 29-30-XI-1966; Santa Cruz, 5-15-XI-01, Thomas and Dozier). FRENCH GUIANA (type). GUYANA (Bartica; Mazaroni-Potaro Dist., Takutu Mts., 31-XII-1982).

Neomida luteonotata (Pic), **new combination**
(Figs. 21, 37)

Hoplocephala luteonotata Pic 1926:29.

Hoplocephala huedepohli Kulzer 1961:214.

New synonymy.

Diagnosis.—Moderately large (± 6 mm); head uniformly reddish, pronotum black, elytra concolorous with head at base, laterally and apically; elytral disc with dark blackish blotch (variable in size) with an extension forward to base (or nearly so) and narrowing apically. Male with two small tubercles on clypeus and two short cephalic horns. Female without clypeal tubercles, frons coarsely and densely punctured with

short prominences laterally (where horns in male are located); epipleura abbreviated beyond last visible abdominal suture.

Types.—*Hoplocephala luteonotata* was described from one male from French Guiana (MNHN). The type series of *H. huedepohli* Kulzer (6 ♂, 4 ♀) in Museum Frey were unavailable to me, but the description leaves little doubt of the proposed synonymy. The type locality is Iguaçu Falls [Paraná], Brazil, with an additional female from Nova Teutonia [Santa Catarina] Brazil.

Specimens examined.—52 specimens from the following localities: ARGENTINA (El Quemado; Jujuy). BOLIVIA (Boyuebe to Charagua via Cueva Ingri). BRAZIL (Santo Antonio da Barra, Bahia; Matusinhos, Minas Gerais; Rio de Janeiro; Nova Teutonia, Santa Catarina). FRENCH GUIANA (type). PARAGUAY (Anasits, Alto Paraná, Puerto Bertoni). SURINAME (Brokopondo District).

Neomida vitula (Chevrolat), **new combination**
(Figs. 22, 38)

Hoplocephala vitula Chevrolat 1878b:214.

Diagnosis.—Moderately large (± 5.0 mm), dark reddish brown to piceous, shiny, the elytral suture reddish. Male with two short, blunt cephalic horns and two very small and inconspicuous marginal clypeal tubercles. Female without clypeal tubercles, frons finely and sparsely punctured with short prominences laterally (where horns in male are located). Elytra finely punctate-striate, striae not in grooves; intervals minutely punctate; epipleura abbreviated beyond last visible abdominal suture.

Types.—Described from a unique type (sex undetermined) from “Brasilia meridionalis” (MNHN). All that remains is the right elytron, both wings, meso- and metasternum, both mesothoracic legs and left metathoracic leg. The elytron is reddish brown, punctate striate, with flat, finely and densely punctured intervals (from my notes

1980). I am basing the determination of this species on size, locality, abundance in the area (southern Brazil), and the finely punctured elytral intervals.

Specimens examined.—127 specimens examined from the following localities: ARGENTINA (Iguaçu Falls; Prov. Santiago des Estero, Icaño). BRAZIL (States of Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Santa Catarina). FRENCH GUIANA (Charvein).

SPECIES EXCLUDED FROM *NEOMIDA*

From a study of the types, I have determined that the following two species do not belong to *Neomida*:

Hoplocephala ehippiata Chevrolat 1878b:214.—Described from a unique female (studied by me in MNHN 1980) from "Nova Grenada" (Colombia). According to my notes, this is not a *Neomida*; unfortunately, I was not able to place it in any other genus.

Hoplocephala cavifrons Chevrolat 1878b:209.—Described from a unique specimen, sex undetermined (studied by me in MNHN 1980) from "Brasilia." This species belongs in the genus *Ulosonia* Laporte.

UNPLACED SPECIES

The following names, listed in chronological order, cannot be associated with any biological species known to me:

1. *Diaperis bituberculata* Olivier 1791: 274; 1795, 55:8, pl. 1, figs. a, b, described from "environs of Paris," length: 2.1 mm (1 line).

Oplocephala bituberculata (Olivier): Laporte and Brullé 1831:348, reported that this is the only species that is found around Paris, that it lives under bark, and is very rare, length: 2.8 mm long (1 ½ lines).

Hoplocephala bituberculata (Olivier): Chevrolat 1878b:210, pointed out that the Paris locality was in error; it was found in an exotic boletus of unknown origin.

Both the original Olivier description and illustrations and the longer redescription by Laporte and Brullé are inadequate to vali-

date this name. I have seen none of the specimens upon which this name is based. I am not certain whether all of the authors listed above saw the same specimens, nor am I aware that this species is still to be found in France. It will probably always remain a *nomen dubium*.

2. *Oplocephala chalybea* Laporte and Brullé 1831:341. Type not seen; described from "Philadelphia (Amérique du Nord)." From the size (Length: 4 lines = 8.46 mm), it must be something other than *Neomida* or else not from North America. Horn (1870:380) did not recognize it and stated that it is "probably not North American."

3. *Oplocephala capra* Laporte and Brullé 1831:345. Type not seen; described from Jamaica. This is almost certainly a synonym of *N. bicornis* (Fab.). Marcuzzi (1984) reported it as a valid species from Jamaica. Length: 4.23 mm (2 lines).

4. *Oplocephala armata* Laporte and Brullé 1831:345. Type not seen; described from Cayenne. *Eroplus* (sic) *armatum* (Laporte and Brullé): Chevrolat 1878b:210. Marcuzzi (1984) listed this as a valid species from Cuba and French Guiana. He also listed *N. armata* var. *curticornis* (Pic 1925: 29) from French Guiana, but it is not clear if he considered it valid or not.

5. *Oplocephala collaris* Laporte and Brullé 1831:347. Type not seen; sex not mentioned, but presumably a male. From the size given (2.5 lines = 5.3 mm), it cannot be a synonym of *N. bicornis*, the only member of the genus that occurs in northeastern United States. Horn (1870:380) states that it is "unknown to us." The original description states that this species was from the collection of M. Dupont, which was received from Philadelphia, not that it was collected at Philadelphia.

6. *Oplocephala quadrituberculata* Curtis, 1845:468. Type not seen; described from a pair collected at "St. Pauls" (= São Paulo), Brazil. Only two species known to me are as large as the size given (length: 3 ¼ lines = 7.9 mm): *N. lateralis* and *N. dolichocera*, neither of which are known from

Brazil. I have no idea what this name represents.

7. *Hoplocephala amazonica* Bates 1873: 203. Type not seen; described from a unique female from Santarém, Lower Amazons, Brazil. Length: 4.7 mm (2 ¼ lines). From the stated size, color, head, and elytral structure and type locality, I am reasonably certain that this is a synonym of *N. hoffmanseggi* (Laporte and Brullé).

8. *Hoplocephala lutea* Chevrolat 1878a: XCVII. The type is represented only by an empty pin (MNHN) and was published as being from Venezuela. Champion (1886: 177) recorded this species from Esperanza and Jalapa, Mexico, but his identification was based on Chevrolat's description. I did not see Champion's Mexican specimens. The size given in the original description (length: 7.5 mm) is larger than any Mexican *Neomida* known to me. This is very probably a synonym of *N. lateralis*, based on size, description, and type locality.

9. *Hoplocephala convexa* Pic 1926:28. Type not seen; described from French Guiana. Length: 4.0 mm. Pic places it near *N. distans*, but I cannot confirm his decision.

10. *Hoplocephala testaceipes* Pic 1926: 28. Type not seen; described from French Guiana. Length: 4.0 mm. Pic places it near *N. convexa*.

11. *Hoplocephala minuta* Pic 1926:28. Type not seen; described from French Guiana. Length 3.0 mm. Pic places it near *N. cioides* which is widespread and quite variable in male cephalic armature. This is quite probably a synonym of *N. cioides*.

12. *Hoplocephala armata curticornis* Pic 1926:29. Type not seen; described from a single male from "Guyane" (a nine word description, no measurements given). I have no idea what this is.

13. *Hoplocephala atricollis* Kulzer 1961:215. Type not seen; described from one male, 2 females from Nova Teutonia, Santa Catarina, Brazil. From the description, this appears to be a synonym of *N. luteonotata* (Pic) and also a primary homonym of *Hoplocephala atricollis* Pic.

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Acronyms for other collections mentioned are as follows:

BMNH.	The Natural History Museum, London.
CASC.	California Academy of Sciences, San Francisco.
CDFA.	California Department of Food and Agriculture, Sacramento.
CISC.	California Insect Survey, University of California, Berkeley.
CNCI.	Canadian National Collection of Insects, Ottawa, Ontario.
EMUS.	Entomology Museum, Utah State University, Logan.
MCZC.	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts.
OSUC.	The Ohio State University Insect Collection, Museum of Biological Diversity, Columbus, Ohio.
USNM.	Department of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, DC.

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